ANALYSIS OF THE NOVEMBER 2002 ADAK, ATKA and AMLIA ISLANDS RED KING CRAB COMMISSIONER'S PERMIT SURVEY

By

Karla Granath

Regional Information Report[1] No. 4K03-33

Alaska Department of Fish and Game
Division of Commercial Fisheries
211 Mission Road
Kodiak, Alaska 99615

May 2003

[1] The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished division reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

AUTHOR

Karla Granath is the Assistant Area Management Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, Box 920587, Dutch Harbor, AK. 99692.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

In November 2002, a stock assessment survey for red king crabs *Paralithodes camtschaticus* was conducted under authority of a commissioner's permit in the Adak, Atka and Amlia Island areas of the western Aleutian Islands. The permit terms were designed to provide for the collection of relative abundance and stock-condition data. Because of budgetary constraints, the survey structure allowed participants to sell all legal red king crabs captured during the survey to cover costs. Observer coverage was required on all vessels to collect size frequency, shell-age, sex and crab relative abundance information.

The survey period was from November 1 through November 30, 2002. Methods for retaining captured crabs were outlined in the commissioner's permit for the survey. The permit specified stations, soak time, number of pots, logbook and observer sampling requirements for each participating vessel. The survey area was divided into four locales which together had a total of 116 survey stations; Adak Island, North Atka Island, North Amlia Island and South Atka/Amlia Islands. Ten vessels surveyed a total of 61 stations composed of 1,085 pot lifts.

Although the area was not entirely surveyed due to the failure of participants to complete all their assigned stations, the portion that was completed indicates that the red king crab stocks around Adak, Atka and Amlia Islands continue to be severely depressed. A total of four legal red king crabs were captured during the November 2002 survey.

INTRODUCTION

The Adak red king crab fishery began in 1961 when four vessels harvested 2.1 million pounds. Harvest in the Adak Area (formerly Area R, west of 172° W long.) reached a peak of 21 million pounds in 1964/65. From 1967/68 to the 1972/73 seasons, catches were relatively stable at 14 million to 19 million pounds. The large red king crab harvests were made possible by several years of strong stock recruitment and by the exploitation of red king crab populations discovered east of Adak Island. In addition to the eastward exploration, some vessels started fishing in the waters of the Petrel Bank, Amchitka Island and other westward islands where a separate fishery, Area S, was created in 1967. The catch from Area S was not large, and in 1978 Area S was merged into Area R to form the Petrel Bank and Western Aleutians Districts (ADF&G 1985). After the 1972/73 season, harvests declined so sharply that the Alaska Board of Fisheries (BOF) did not open the 1976/77 season. Fluctuating harvest levels from one year to the next characterized the red king crab fishery in the western Aleutians and the general trend was one of decreasing harvests in the 1980s and 1990s (Table 1; Figure 1).

Aleutian Islands red king crab harvest goals have been based on historic catch data, although in the late 1970s guideline harvest level (GHL) ranges were established using a blend of pot survey results and fishery data. Western Aleutian Islands pot surveys conducted from 1975 to 1977 provided catch per unit effort (CPUE, defined as crabs per pot lift), fecundity and relative abundance information (ADF&G 1978). GHLs were often modified in season based on fishery performance. Historic fishery GHLs set in the late 1970s ranged from 0.5 million to 3.0 million pounds in the Adak Registration Area (ADF&G 1978).

Because of poor fishery performance and declining stocks, the eastern Aleutian Islands red king crab fishery has been closed since 1983. The western Aleutian Islands remained open until 1996, when it also closed due to poor fishery performance and red king crab stock recruitment failure as indicated by observer data. Prior to the closure in the western Aleutian Islands, the area that supported red king crab harvest was severely reduced. Harvests from the Attu area declined in the early to mid 1980s and the Atka/Amlia area declined in the late 1980s. In the late 1980s and early 1990s, fishery harvests occurred mainly from the Petrel Bank area. However, by the 1995/96 season, harvests from the Petrel Bank area had also declined (Bowers et al. 2002).

On November 1, 1998, a limited commercial fishery was opened in two locations of the western Aleutian Islands in order to assess the status of red king crabs. The GHL for each area was set using historic catch information. East of 179° W long., a GHL of 5,000 pounds was established and west of 179° E long,. a GHL of 10,000 pounds was set. Closed waters included the Petrel Bank, or the area between 179° E and 179° W long. The department did not open the Petrel Bank area in 1998/99 because prior efforts had provided some population data (Byersdorfer 1998).

Three vessels registered to harvest red king crabs in the Aleutian Islands during the 1998/99 season, but only one recorded any landings. The GHL was not reached in either open area and the fishery was closed by emergency order on July 31, 1999. Observers were required on all vessels participating in the 1998/99 fishery.

In September of 1999, the North Pacific Fishery Management Council's Crab Plan Team met and discussed the Aleutian Islands red king crab stock status. The department had received requests from industry to open a limited commercial fishery in the western Aleutians to provide stock assessment information. Since recent fishery-based assessments were not providing adequate data for fishery management and because of concerns for serial depletion at very low stock levels, the Crab Plan Team recommended that ADF&G conduct a survey prior to allowing a commercial fishery. The Team also recommended the development of a survey plan with Industry participation in the design. Survey results would be compared to past fishery CPUE, size frequency and prerecruit levels to help judge the current health of the stock.

In January and February of 2001, the department conducted a survey of the Petrel Bank utilizing the commercial fleet. However, because of low catches of prerecruit males and females, a second survey was designed for November 2001. At that time, November 1 was the regulatory opening of the Aleutian Islands commercial red king crab fishery. Small crabs had been caught during the commercial fishery in November and December of prior years; therefore the survey area was assessed again during November to address concerns of survey timing on survey results. Observer coverage was required on all vessels that participated in the 2001 surveys.

The survey area was divided into stations (20 in Jan/Feb, 28 in Nov) and an equal number of stations were randomly assigned to participating vessels. Vessel operators were required to operate 25 pots in each assigned station. Specific gear, soak time and pot spacing requirements were outlined in the commissioner's permit. Survey results indicated healthy levels of legal males and the Petrel Bank fishery was opened in 2002 with a GHL of 0.5 million pounds (Bowers et al. 2002).

At the March 2002 BOF meeting, the department received requests from industry to conduct similar surveys in other portions of the western Aleutians. Therefore, the department designed and conducted a survey to assess the red king crab stock between 172° W long., and 179° W. long. beginning November 1, 2002.

Fishery Regulations

Regulations governing the Aleutian Islands red king crab fishery are generally similar to Bering Sea king crab regulations. However, some regulations address concerns specific to the Aleutian Islands. A vessel may be registered to fish in the commercial red king crab and golden king crab fisheries at the same time; however, only single line pots may be operated in areas open to red king crab fishing and only longline pots may be operated in areas open to golden king crab fishing. Likewise, only red king crab may only be retained from single line pots and golden king crab may only be retained from longline pots. Pot limits exist only for the Petrel Bank fishery; there are no pot limits for other king crab fisheries in the Aleutian Islands. All pot gear must contain an opening in a sidewall of no less than 18 inches, laced together with cotton twine, as an escape mechanism. In addition, pots used for only red king crab must have at least one-third of one vertical surface composed of not less than nine-inch stretch mesh webbing to permit the escapement of undersized red king crab. Escape mechanisms for vessels targeting golden king crabs, or fishing both species simultaneously using the same pots must have four 5.5 inch escape rings or one-third of a vertical panel of 9-inch stretched mesh webbing. Vessel length restrictions

apply in two areas of the Aleutian Islands. In Unalaska Bay, vessels fishing for red king crabs must be under 58 feet overall length. In state waters between 172° W long. and 179° W long., the commissioner may issue a permit only to a vessel 90 feet or less in overall length, to fish for red king crab. Observers are required on all vessels over 58 feet in overall length fishing for king crabs in the Aleutian Islands. Observers on golden king crab vessels provide red king crab bycatch data from that fishery, although red king crab catch in golden king crab gear is minimal due to the limited overlap in depth distribution of the two species. In the directed red king crab fishery, observers provide data on retained and non-retained crabs, as well as data related to fishing patterns.

METHODS

The western Aleutians (Figure 2) survey area between 172° W long. and 179° W long. was opened by emergency order to the harvest of legal male red king crabs under the authority of a commissioner's permit, from November 1 through November 30, 2002. The survey area was developed in consultation with industry and focused on areas of historic red king crab abundance in the Adak, Atka and Amlia Islands areas that have been closed to commercial red king crab fishing since the 1998/99 season and had not been previously surveyed.

A news release announcement for the survey was posted on September 13, 2002 and the deadline for applicants was October 11, 2002. Survey stations were grouped into four locales; Adak which had 48 stations (Figure 3), North Atka which had 24 stations (Figure 4), North Amlia which had 20 stations (Figure 5) and South Atka/Amlia which had 24 stations (Figure 6). Within each locale, stations were further subdivided between state and federal waters. Regulations for this area give preference to vessels 90 feet or less in overall length to fish in the state-water portion of the survey and vessels applying for stations in federal waters were required to hold a federal Bering Sea/Aleutian Islands crab license with an Aleutian Islands red king crab endorsement. The four locales contained a total of 56 state-waters stations and 60 stations in federal waters. Participants were asked to specify whether they intended to participate in one or more of the four locales and if they intended to survey state waters, federal waters or both (depending on vessel size and endorsements). Survey stations were assigned separately for state waters and federal waters within each locale which often necessitated removing or adding extra stations to ensure an equal number were allocated to each participant.

Stations were approximately twenty-five square nautical miles, although station size varied depending upon station location and the bottom contour. All stations were less than 100 fathoms in depth. Vessel operators were required to contact the department prior to operating gear. Participants were allowed to complete 25 pot pulls in each station. Pots were to be spaced no less than ¼ nautical mile apart and soak times were set at a minimum of 24 hours and a maximum of 48 hours. Pots could only be legal red king crab gear and only two opposing tunnel entrances were permitted. A vessel operator could use no more than two pot sizes. If two pot sizes were used, the pot types must be randomly fished within the station. Longlining of pots was not allowed. The pot mesh could be no larger than 5-inches stretched mesh. Escape rings had to be closed with a maximum diameter of 3.5 inches. Each vessel operator was required to record the contents of each pot in a logbook.

Observer coverage was mandatory and was paid for by the participant. Observers were required to sample and measure the contents of every fifth pot (for a total of five pots per station if all 25 pot lifts were completed) and sample additional pots with significant catches as time permitted. For all non-sampled pots, the observer and vessel crew counted the size and sex categories of all red king crabs. The vessel operator was required to report to ADF&G the number of pot lifts and number of legal and sublegal male and female crabs from each completed station prior to moving to the next station.

RESULTS

Twenty-seven vessel operators applied for a commissioner's permit by the October 11 deadline. Nine vessels qualified to survey the state-water stations, seventeen vessels qualified for federal-water stations and four vessels qualified for both state and federal-water stations. One vessel did not qualify to fish in either state or federal waters and was not assigned any stations. The 26 qualifying vessels were assigned from one to 10 stations, depending on which locales they chose and where they were qualified to survey. After the initial assignment of stations on October 12, vessel owners/operators were given until October 16 to make a final decision on their participation in the survey. Thirteen vessels decided to drop out of the survey and their stations were re-assigned to the remaining vessels on October 17. Of the remaining 13 vessels, four qualified for only state-water stations, seven qualified for federal-water stations and three vessels qualified for both state and federal-water stations. Final station assignments were announced October 18 and vessels were allocated anywhere from two to nineteen stations, depending on locales selected and qualifications. Twelve of the 13 vessels that were assigned final stations signed a commissioner's permit for the survey and three vessels (including one that did not sign the permit) dropped out of the survey before leaving port.

Ten vessels participated in the survey. Two vessels surveyed in state waters only, six vessels surveyed in federal waters only and two vessels surveyed both state and federal waters. Survey catches were poor and only four legal males were captured during the entire survey. One vessel reported an estimated 260 sublegal and 260 female red king crabs from a single pot that was set outside of their assigned stations, but further efforts in the vicinity were unsuccessful at capturing additional red king crabs. Due to the poor survey catches and high vessel operation costs, many vessels were unable to fulfill their commitment to survey all assigned stations and only 22.4% of the survey stations were completely surveyed (all 25 pot lifts). Average soak time for the survey was 30 hours and pots were fished at an average of 61 fathoms.

Vessels began survey activities on November 1st or 2nd, with the exception of one vessel that was fishing for golden king crabs in the area and did not begin their portion of the survey until November 6. Vessels spent three to eleven days surveying and all except two boats completed their assigned stations or withdrew within a week of starting. Only two vessels completed every station that they were assigned (both vessels had two stations).

Adak Island Stations

All ten vessels surveyed stations around Adak Island. Of the 1,200 possible pot lifts (from 48 stations) only 33.7% were completed (Figure 7). Three legal red king crabs and one sublegal red king crab were captured from the stations east of Great Sitkin Island. Bycatch from pots sampled by observers contained Tanner crabs, *Chionoecetes bairdi* (33%); brittle sea stars, class Ophiuroidea (16%); lyre crabs, *Hyas lyratus* (12%); yellow Irish lords, *Hemilepidotus jordani* (9%); and Pacific cod, *Gadus macrocephalus* (8%).

Atka Island Stations

Six vessels surveyed stations on the north side of Atka Island. Fifteen of the 24 stations in the north Atka Island area had some survey effort and 40.7% of the 600 possible pot lifts were completed (Figure 8). No legal red king crab were captured from any of the Atka Island stations. One pot pulled from station B-5 on the west end of Atka Island had an estimated 260 sublegal and 260 female red king crabs. Other pots sampled from the same area recorded no catch of red king crabs. Bycatch from pots sampled by observers contained Tanner crabs (61%), lyre crabs (10%) and yellow Irish lords (8%).

Amlia Island Stations

Four vessels surveyed stations on the north side of Amlia Island. This locale had the lowest survey coverage with only 28% of the possible 500 pot lifts completed (Figure 8). One legal red king crab was harvested from state waters east of Atka Island. No sublegal or female red king crabs were captured from any of the Amlia Island stations. Observer data indicated that Tanner crab comprised 73% of the catch from these stations with Pacific cod (6%) and octopus (3%) making up a smaller portion of the catch.

South Atka/Amlia Islands Stations

Six vessels surveyed stations on the south side of Atka and Amlia Islands. This locale had the highest percent of completed pot lifts with 49.5% of the possible 600 completed (Figure 8). There were no recorded catches of red king crabs from the stations surveyed in this locale. Data recorded by observers indicate higher groundfish abundance in this locale compared to the other survey locales. Yellow Irish lords were caught most frequently (20%), followed by Pacific cod (15%), Pacific halibut, *Hippoglossus stenolepis* (11%), octopus (10%), miscellaneous sculpin, suborder Cottoidei (7%) and lyre crabs (7%).

DISCUSSION

The red king crab commercial fishery in the western Aleutians area around Adak, Atka and Amlia Islands was closed for three seasons prior to the 2002 survey. Previous stock assessment efforts utilizing the commercial fishery provided little information on stock status or relative

abundance of red king crabs in the western Aleutian Islands because they were not systematically conducted in a defined study area. Station design for the 2002 survey was accomplished with input from industry and methods were developed to allow for the assessment of the red king crab stock in a systematic and repeatable manner. Requirements for short soak time and closure of escape mechanisms were designed to increase the retention of sublegal male and female king crabs.

Capture of red king crabs from the November 2002 survey indicates that the population in this area continues to be severely depressed and no commercial fishery in this area is warranted now or in the near future. The survey was only partially completed. Out of a possible 2,900 pot lifts only 1,085 or 37% were completed. Failure to cover operational costs was the main reason participants gave for failing to complete their portion of the survey. In 2002 fishers were paid nearly $6.50 per pound for red king crabs and for some vessels a catch rate of 10 legal male red king crabs per day would have covered basic costs.

The Aleutian Islands are difficult to survey and trawl surveys are preferred over pot surveys for crab stock assessments. However, because of the steep and often jagged bottom topography, only pot surveys are practical in most locations. Pot surveys utilizing the commercial fleet and legal male catch to cover costs are only realistic if adequate legal crabs are being caught; otherwise survey participants quickly withdraw. While the costs incurred by the department are relatively low, significant staff time is invested in designing the survey, issuing permits, briefing observers and monitoring the survey. In order for these types of surveys to be successful in the future, survey areas should be limited to small geographic regions where travel time between stations is minimal and where catches of legal crabs are likely adequate to cover costs to the participants.

LITERATURE CITED

Alaska Department of Fish and Game (ADF&G). 1978. Westward region shellfish report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Division of Commercial Fisheries. Kodiak.

Alaska Department of Fish and Game (ADF&G). 1985. Westward region shellfish report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Division of Commercial Fisheries. Kodiak.

Bowers, F.R., W. Donaldson, and D. Pengilly. 2002. Analysis of the January-February and November 2001 Petrel Bank red king crab commissioner's permit surveys. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K02-11.

Byersdorfer, S. 1998. A summary of tagging data collected by observers onboard the F/V *Patricia Lee* during the Aleutians brown king crab fishery from November 1996 to February 1997. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K98-22.

Urban, D. 1992. A bottom trawl survey of crab and groundfish in the Kodiak Island, Alaska Peninsula, and Dutch Harbor area, June to September, 1990. Alaska Department of Fish and Game, Division of Commercial Fisheries. Technical Fishery Report 92-10, Kodiak.

Table 1. Aleutian Islands, Area O, red king crab commercial fishery data, 1960/1961 - 2002/2003.

Season	Locale	Number of Vessels[a]	Number of Landings	Number of Crabs[b]	Harvest[b,c]	Pots Lifted	CPUE[d]	Average Weight[c]	Average Length[e]	Deadloss[c]
1960/61	East of 172°	NA	NA	NA	NA	NA	NA	NA	NA	NA
	West of 172°	4	41	NA	2,074,000	NA	NA	NA	NA	NA
	TOTAL									
1961/62	East of 172°	4	69	NA	533,000	NA	NA	NA	NA	NA
	West of 172°	8	218	NA	6,114,000	NA	NA	NA	NA	NA
	TOTAL		**287**		**6,647,000**					
1962/63	East of 172°	6	102	NA	1,536,000	NA	NA	NA	NA	NA
	West of 172°	9	248	NA	8,006,000	NA	NA	NA	NA	NA
	TOTAL		**350**		**9,542,000**					
1963/64	East of 172°	4	242	NA	3,893,000	NA	NA	NA	NA	NA
	West of 172°	11	527	NA	17,904,000	NA	NA	NA	NA	NA
	TOTAL		**769**		**21,797,000**					
1964/65	East of 172°	12	336	NA	13,761,000	NA	NA	NA	NA	NA
	West of 172°	18	442	NA	21,193,000	NA	NA	NA	NA	NA
	TOTAL		**778**		**34,954,000**					
1965/66	East of 172°	21	555	NA	19,196,000	NA	NA	NA	NA	NA
	West of 172°	10	431	NA	12,915,000	NA	NA	NA	NA	NA
	TOTAL		**986**		**32,111,000**					
1966/67	East of 172°	27	893	NA	32,852,000	NA	NA	NA	NA	NA
	West of 172°	10	90	NA	5,883,000	NA	NA	NA	NA	NA
	TOTAL		**983**		**38,735,000**					

-Continued-

Table 1. (Page 2 of 6)

Season	Locale	Number of Vessels[a]	Number of Landings	Number of Crabs[b]	Harvest[b,c]	Pots Lifted	CPUE[d]	Average Weight[c]	Average Length[e]	Deadloss[c]
1967/68	East of 172°	34	747	NA	22,709,000	NA	NA	NA	NA	NA
	West of 172°	22	505	NA	14,131,000	NA	NA	NA	NA	NA
	TOTAL		**1,252**		**36,840,000**					
1968/69	East of 172°	NA	NA	NA	11,300,000	NA	NA	NA	NA	NA
	West of 172°	30	NA	NA	16,100,000	NA	NA	NA	NA	NA
	TOTAL				**27,400,000**					
1969/70	East of 172°	41	375	NA	8,950,000	72,683	NA	NA	NA	NA
	West of 172°	33	435	NA	18,016,000	115,929	NA	6.5	NA	NA
	TOTAL		**810**		**26,966,000**	**188,612**				
1970/71	East of 172°	32	268	NA	9,652,000	56,198	NA	NA	NA	NA
	West of 172°	35	378	NA	16,057,000	124,235	NA	NA	NA	NA
	TOTAL		**646**		**25,709,000**	**180,433**				
1971/72	East of 172°	32	210	1,447,692	9,391,615	31,531	46	7	NA	NA
	West of 172°	40	166	NA	15,475,940	46,011	NA	NA	NA	NA
	TOTAL		**376**		**24,867,555**	**77,542**				
1972/73	East of 172°	51	291	1,500,904	10,450,380	34,037	44	7		
	West of 172°	43	313	3,461,025	18,724,140	81,133	43	5.4	NA	NA
	TOTAL		**604**	**4,961,929**	**29,174,520**	**115,170**	**43**	**5.9**		
1973/74	East of 172°	56	290	1,780,673	12,722,660	41,840	43	7.1	NA	NA
	West of 172°	41	239	1,844,974	9,741,464	70,059	26	5.3	148.6	NA
	TOTAL		**529**	**3,625,647**	**22,464,124**	**111,899**	**32**	**6.2**		

-Continued-

Table 1. (Page 3 of 6)

Season	Locale	Number of Vessels[a]	Number of Landings	Number of Crabs[b]	Harvest[b,c]	Pots Lifted	CPUE[d]	Average Weight[c]	Average Length[e]	Deadloss[c]
1974/75	East of 172°	87	372	1,812,647	13,991,190	71,821	25	7.7		
	West of 172°	36	97	532,298	2,774,963	32,620	16	5.2	148.6	NA
	TOTAL		**469**	**2,344,945**	**16,766,153**	**104,441**	**22**	**7.1**		
1975/76	East of 172°	79	369	2,147,350	15,906,660	86,874	25	7.4		
	West of 172°	20	25	79,977	411,583	8,331	10	5.2	147.2	NA
	TOTAL		**394**	**2,227,327**	**16,318,243**	**95,205**	**23**	**7.3**		
1976/77	East of 172°	72	226	1,273,298	9,367,965[f]	65,796	19	7.4		
	East of 172°	38	61	86,619	830,458[g]	17,298	5	9.6	NA	NA
	West of 172°				F I S H E R Y C L O S E D					
	TOTAL		**287**	**1,359,917**	**10,198,423**	**83,094**	**16**	**7.5**		
1977/78	East of 172°	33	227	539,656	3,658,860[r]	46,617	12	6.8		
	East of 172°	6	7	3,096	25,557[n]	812	4	8.3	NA	NA
	West of 172°	12	18	160,343	905,527	7,269	22	5.7	152.2	NA
	TOTAL		**252**	**703,095**	**905,527**	**54,698**	**13**	**6.5**		
1978/79	East of 172°	60	300	1,233,758	6,824,793	51,783	24	5.5	NA	NA
	West of 172°	13	27	149,491	807,195	13,948	11	5.4	NA	1,170
	TOTAL		**327**	**1,383,249**	**7,631,988**	**65,731**	**21**	**5.5**		
1979/80	East of 172°	104	542	2,551,116	15,010,840	120,554	21	5.9	NA	NA
	West of 172°	18	23	82,250	467,229	9,757	8	5.7	152	24,850
	TOTAL		**565**	**2,633,366**	**15,478,069**	**130,311**	**20**	**5.9**		
1980/81	East of 172°	114	830	2,772,287	17,660,620[r]	231,607	12	6.4	NA	NA
	East of 172°	54	120	182,349	1,392,923[n]	30,000	6	7.6		
	West of 172°	17	52	254,390	1,419,513	20,914	12	5.6	149	54,360
	TOTAL		**1,002**	**3,209,026**	**20,473,056**	**282,521**	**11**	**6.4**		

-Continued-

Table 1. (Page 4 of 6)

Season	Locale	Number of Vessels[a]	Number of Landings	Number of Crabs[b]	Harvest[b,c]	Pots Lifted	CPUE[d]	Average Weight[c]	Average Length[e]	Deadloss[c]
1981/82	East of 172°	92	683	741,966	5,155,345	220,087	3	6.9	NA	NA
	West of 172°	46	106	291,311	1,648,926	40,697	7	5.7	148.3	8,759
	TOTAL		**789**	**1,033,277**	**6,804,271**	**260,784**	**4**	**6.6**		
1982/83	East of 172°	81	278	64,380	431,179	72,924	1	6.7		
	West of 172°	72	191	284,787	1,701,818	66,893	4	6.0	150.8	7,855
	TOTAL		**469**	**349,167**	**2,132,997**	**139,817**	**3**	**6.1**		
1983/84	East of 172°				F I S H E R Y C L O S E D					
	West of 172°	106	248	298,948	1,981,579	60,840	5	6.6	157.3	3,833
	TOTAL	**106**	**248**	**298,948**	**1,981,579**	**60,840**	**5**	**6.6**	**157.3**	**3,833**
1984/85	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	64	113	206,751	1,367,672	50,685	4	6.6	155.1	0
	TOTAL	**64**	**113**	**206,751**	**1,367,672**	**50,685**	**4**	**6.6**	**155.1**	**0**
1985/86	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	35	89	162,271	906,293	32,478	5	5.6	152.2	6,120
	TOTAL	**35**	**89**	**162,271**	**906,293**	**32,478**	**5**	**5.6**	**152.2**	**6,120**
1986/87	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	33	69	126,146	712,243	29,189	4	5.6	NA	500
	TOTAL	**33**	**69**	**126,146**	**712,243**	**29,189**	**4**	**5.6**	**NA**	**501**
1987/88	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	71	109	211,712	1,213,933	43,433	5	5.7	148.5	6,900
	TOTAL	**71**	**109**	**211,712**	**1,213,933**	**43,433**	**5**	**5.7**	**148.5**	**6,900**
1988/89	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	73	156	266,053	1,567,314	64,374	4	5.9	153.1	557
	TOTAL	**73**	**156**	**266,053**	**1,567,314**	**64,374**	**4**	**5.9**	**153.1**	**557**

-Continued-

Table 1. (Page 5 of 6)

Season	Locale	Number of Vessels[a]	Number of Landings	Number of Crabs[b]	Harvest[b,c]	Pots Lifted	CPUE[d]	Average Weight[c]	Average Length[e]	Deadloss[c]
1989/90	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	56	123	196,070	1,118,566	54,513	4	5.7	151.5	759
	TOTAL	**56**	**123**	**196,070**	**1,118,566**	**54,513**	**4**	**5.7**	**151.5**	**759**
1990/91	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	7	34	146,903	828,105	10,674	14	5.6	148.1	0
	TOTAL	**7**	**34**	**146,903**	**828,105**	**10,674**	**14**	**5.6**	**148.1**	**0**
1991/92	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	10	35	165,356	951,278	16,636	10	5.7	149.8	0
	TOTAL	**10**	**35**	**165,356**	**951,278**	**16,636**	**10**	**5.7**	**149.8**	**0**
1992/93	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	12	30	218,049	1,286,424	16,129	13	6.0	151.5	5,000
	TOTAL	**12**	**30**	**218,049**	**1,286,424**	**16,129**	**13**	**6.0**	**151.5**	**5,000**
1993/94	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	12	21	119,330	698,077	13,575	9	5.8	154.6	7,402
	TOTAL	**12**	**21**	**119,330**	**698,077**	**13,575**	**9**	**5.8**	**154.6**	**7,402**
1994/95	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	20	31	30,337	196,967	18,146	2	6.5	157.5	1,430
	TOTAL	**20**	**31**	**30,337**	**196,967**	**18,146**	**2**	**6.5**	**157.5**	**1,430**
1995/96	East of 171°				F I S H E R Y C L O S E D					
	West of 171°	4	12	6,880	38,941	2,205	3	5.7	153.6	235
	TOTAL	**4**	**12**	**6,880**	**38,941**	**2,205**	**3**	**5.7**	**153.6**	**235**
1996/97					F I S H E R Y C L O S E D					
1997/98					F I S H E R Y C L O S E D					

-Continued-

Table 1. (Page 6 of 6)

Season	Locale	Number of Vessels[a]	Number of Landings	Number of Crabs[b]	Harvest[b,c]	Pots Lifted	CPUE[d]	Average Weight[c]	Average Length[e]	Deadloss[c]
1998/99	West of 174°	3			CONFIDENTIAL					
1999/2000					FISHERY CLOSED					
2000/01	Petrel Bank[i,j]	1	3	11,257	76,792	498	23	6.8	161.0	0
2001/02	Petrel Bank[k]	4	5	22,080	153,961	700	32	7.0	159.5	82
2002/03	Petrel Bank	33	35	68,300	505,642	3,782	18	7.4	162.4	1,311

[a]Many vessels fished both east and west of 171° W long., thus total number of vessels reflects registrations for entire Aleutian Islands.

[b]Deadloss included.

[c]In pounds.

[d]Number of legal crabs per pot lift.

[e]In millimeters.

[f]Split season based on 6.5 inch minimum legal size.

[g]Split season based on 8 inch minimum legal size.

[h]Split season based on 7.5 inch minimum legal size.

[i]Those waters of king crab Registration Area O between 179° E long., 179° W long., and north of 51°45' N lat.

[j]January/February Petrel Bank survey (fish ticket harvest code 15).

[k]November Petrel Bank survey (fish ticket harvest code 15).

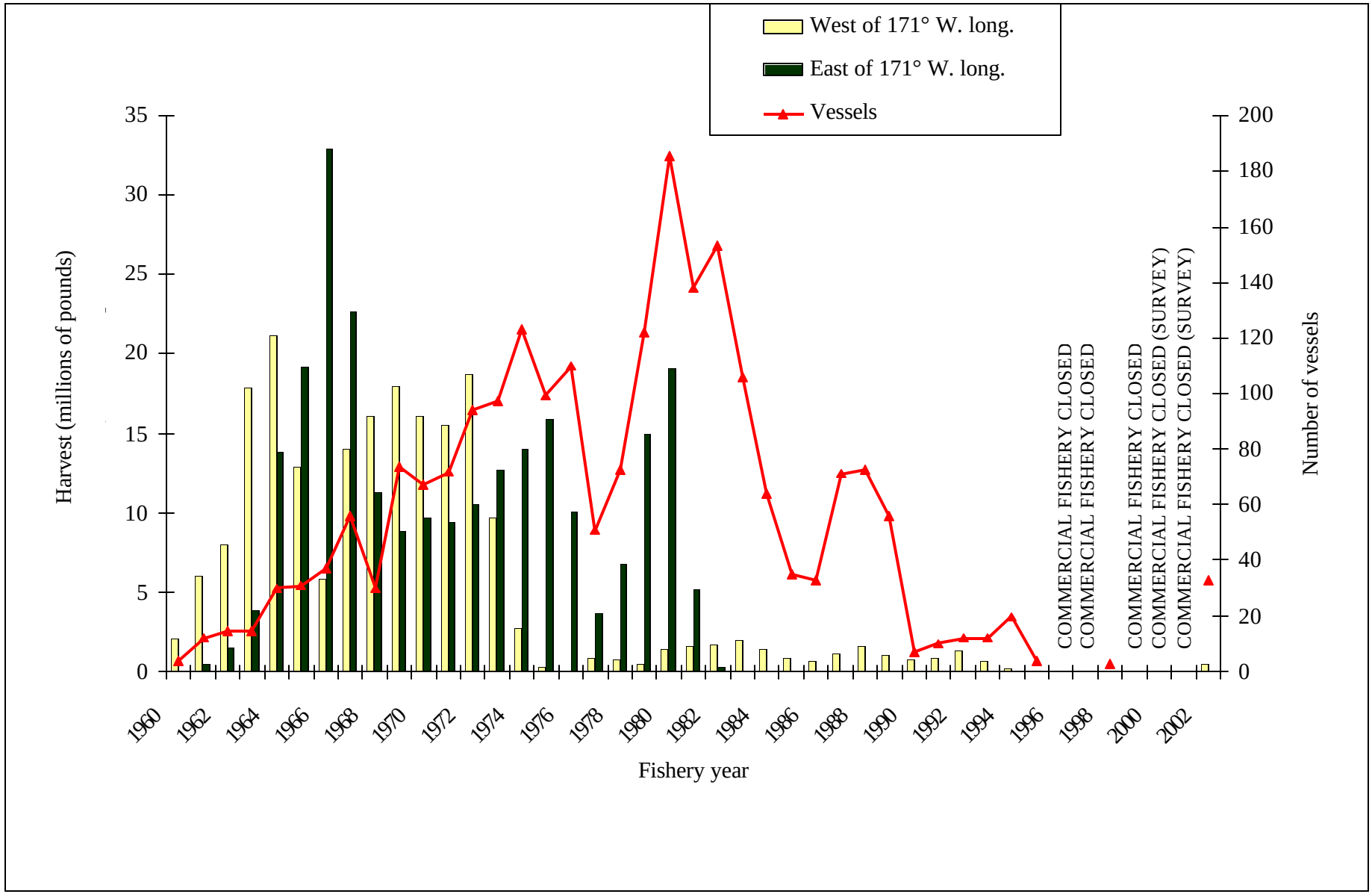

Figure 1. Aleutian Islands red king crab fishery harvest and effort, 1960/61 – 2002/03.

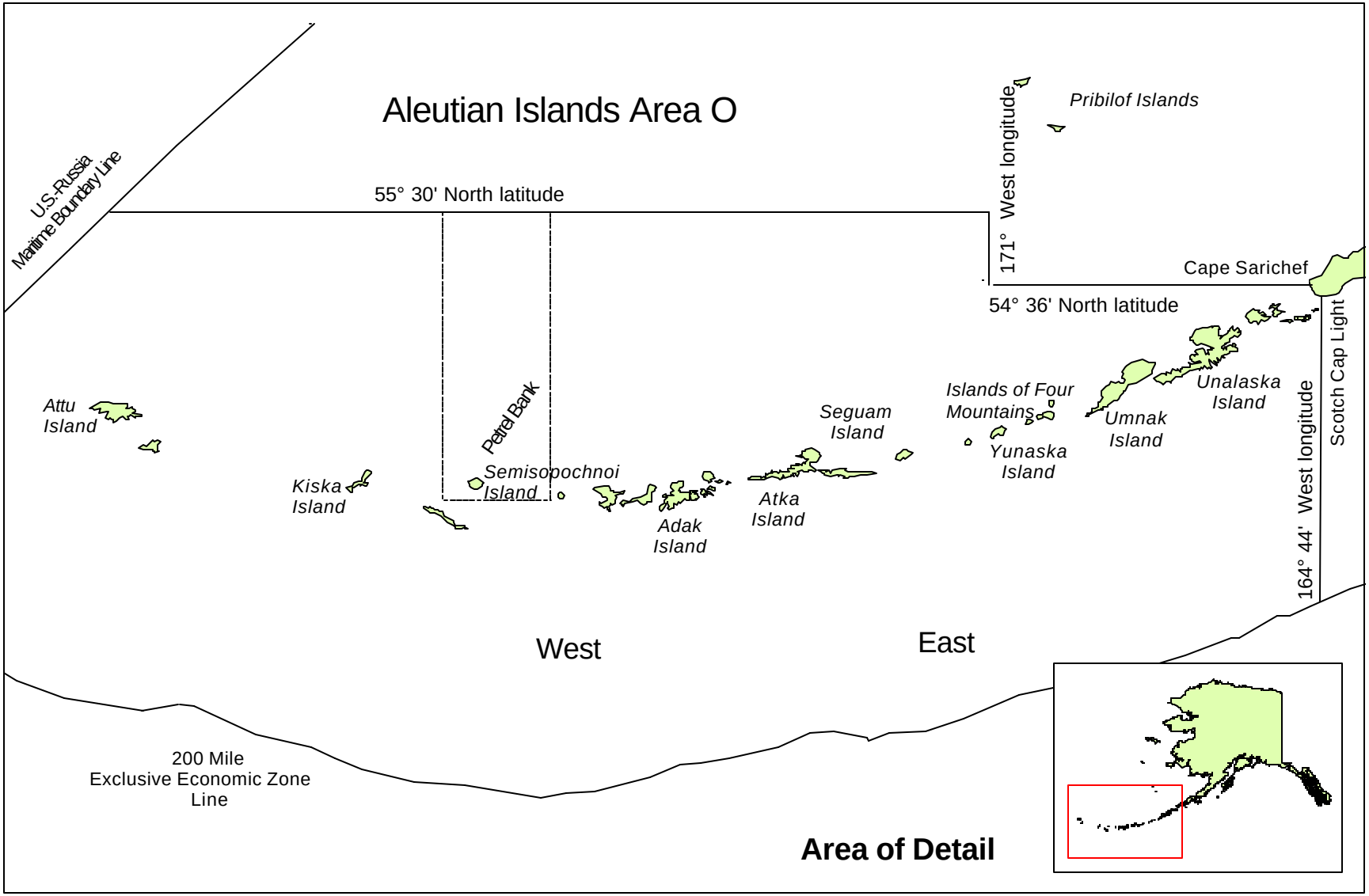

Figure 2. Aleutian Islands Area O king crab Registration Area.

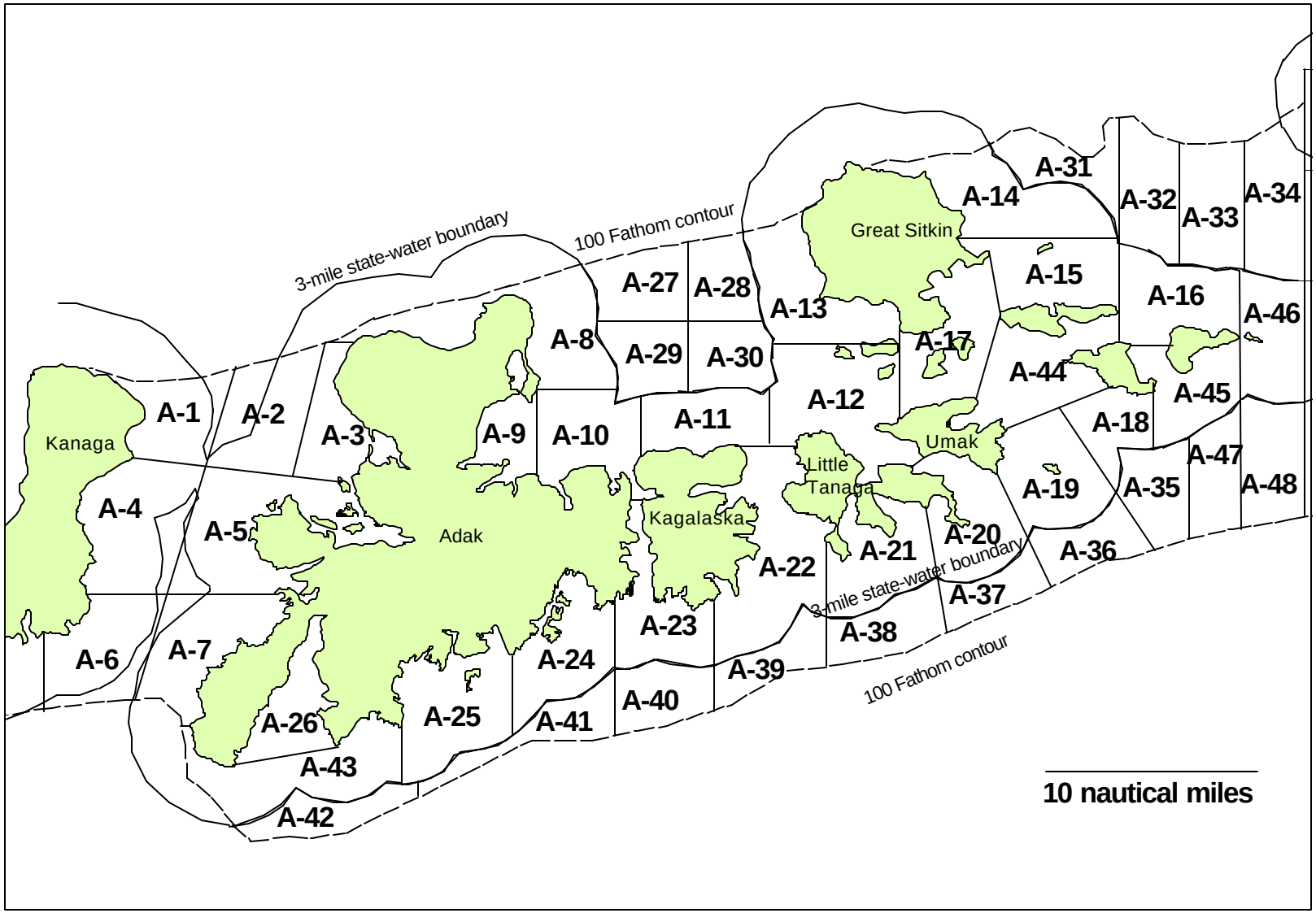

Figure 3. Adak Island red king crab survey stations, November 2002.

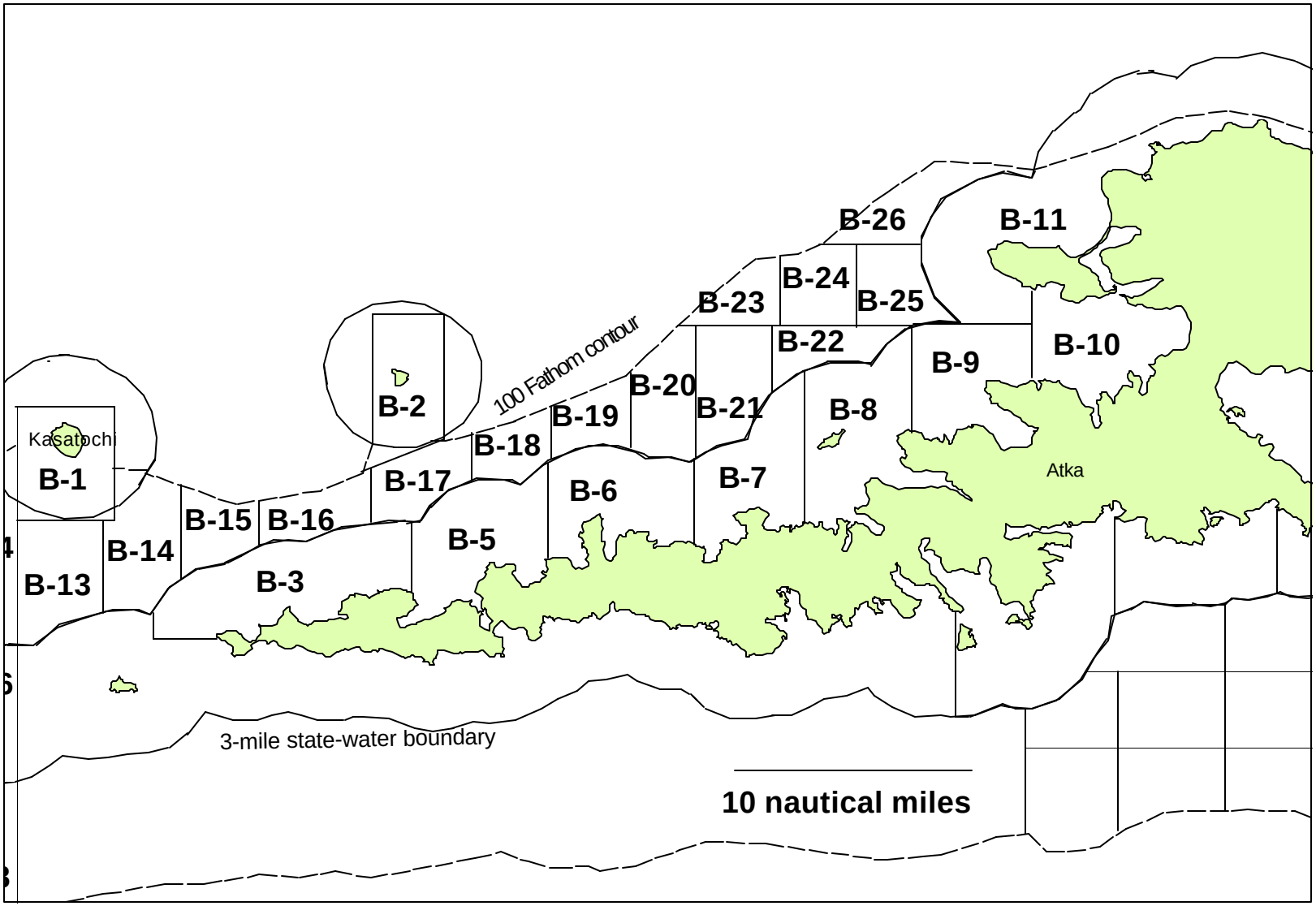

Figure 4. Atka Island red king crab survey stations, November 2002.

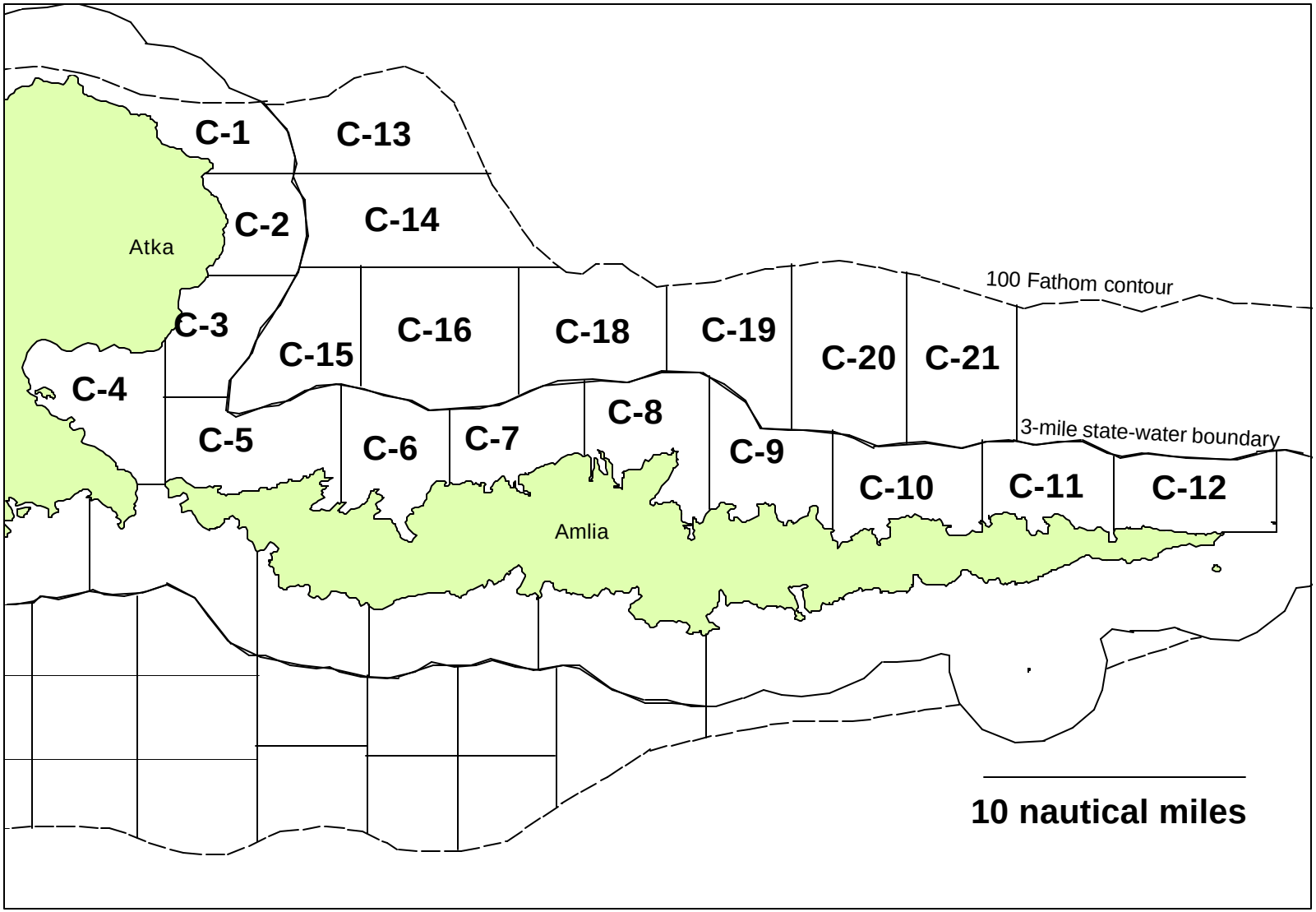

Figure 5. North Amlia Island red king crab survey stations, November 2002.

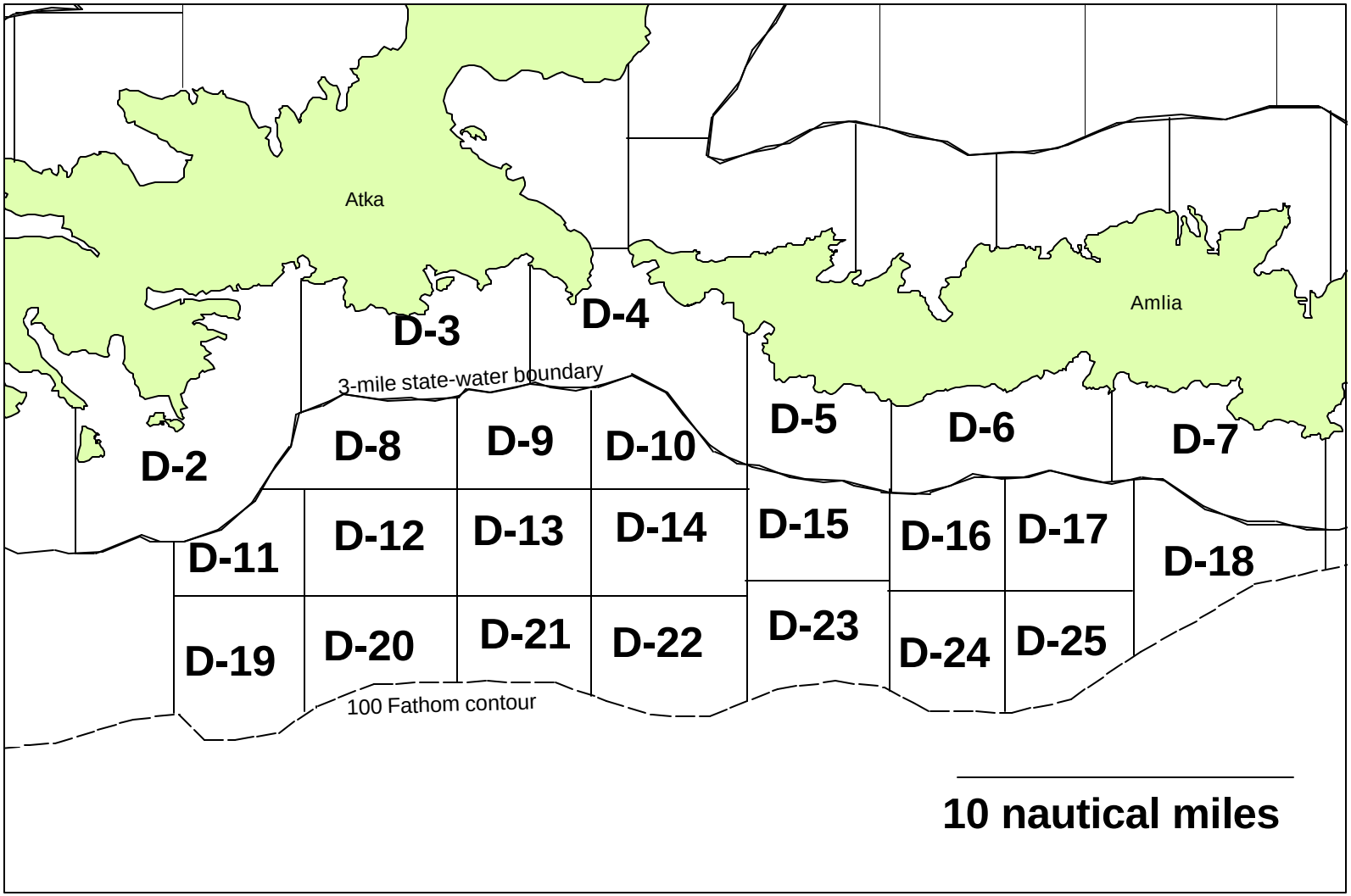

Figure 6. South Atka/Amlia Islands red king crab survey stations, November 2002.

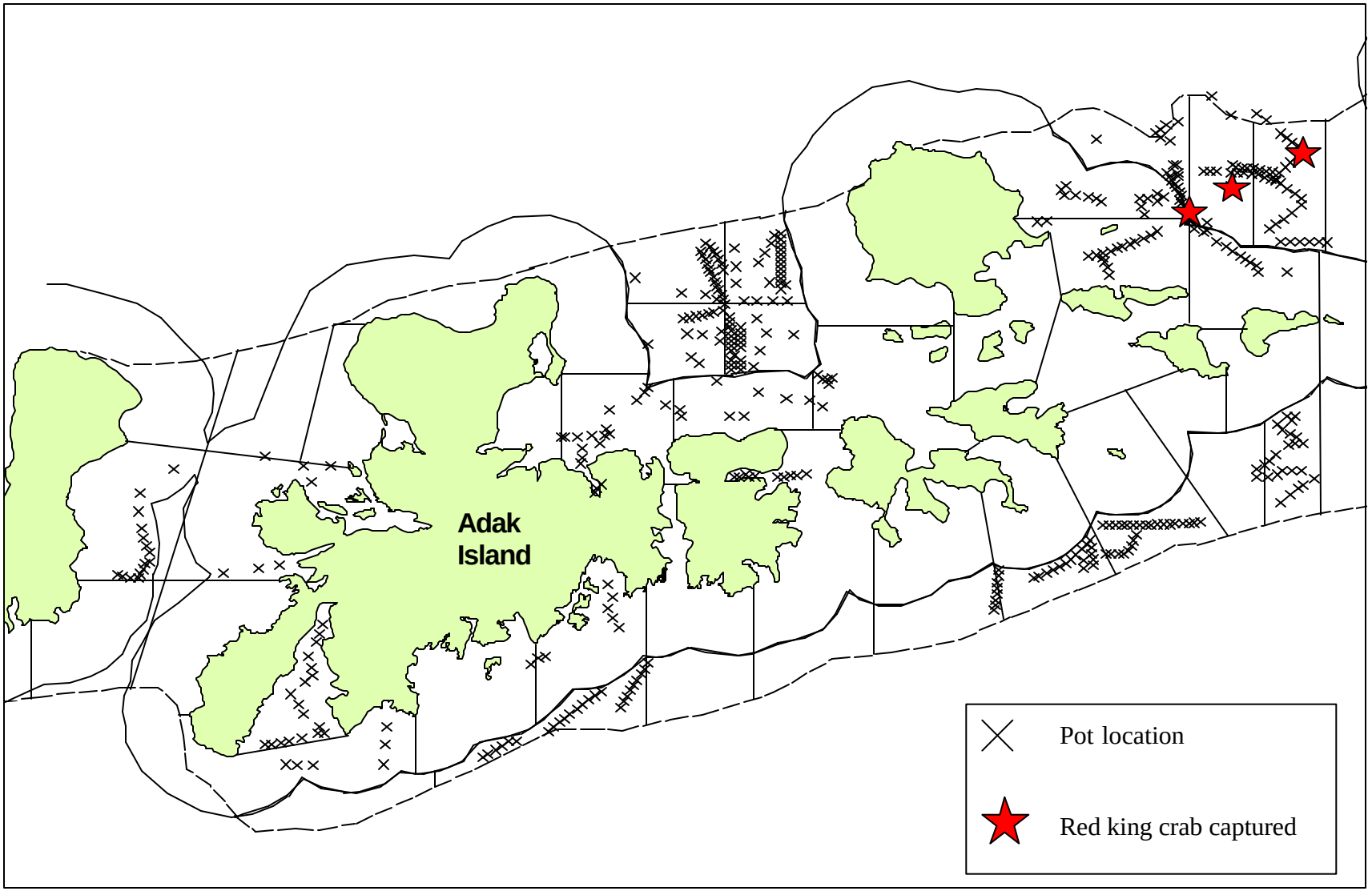

Figure 7. Location of survey pots set in the Adak Island locale, November 2002.

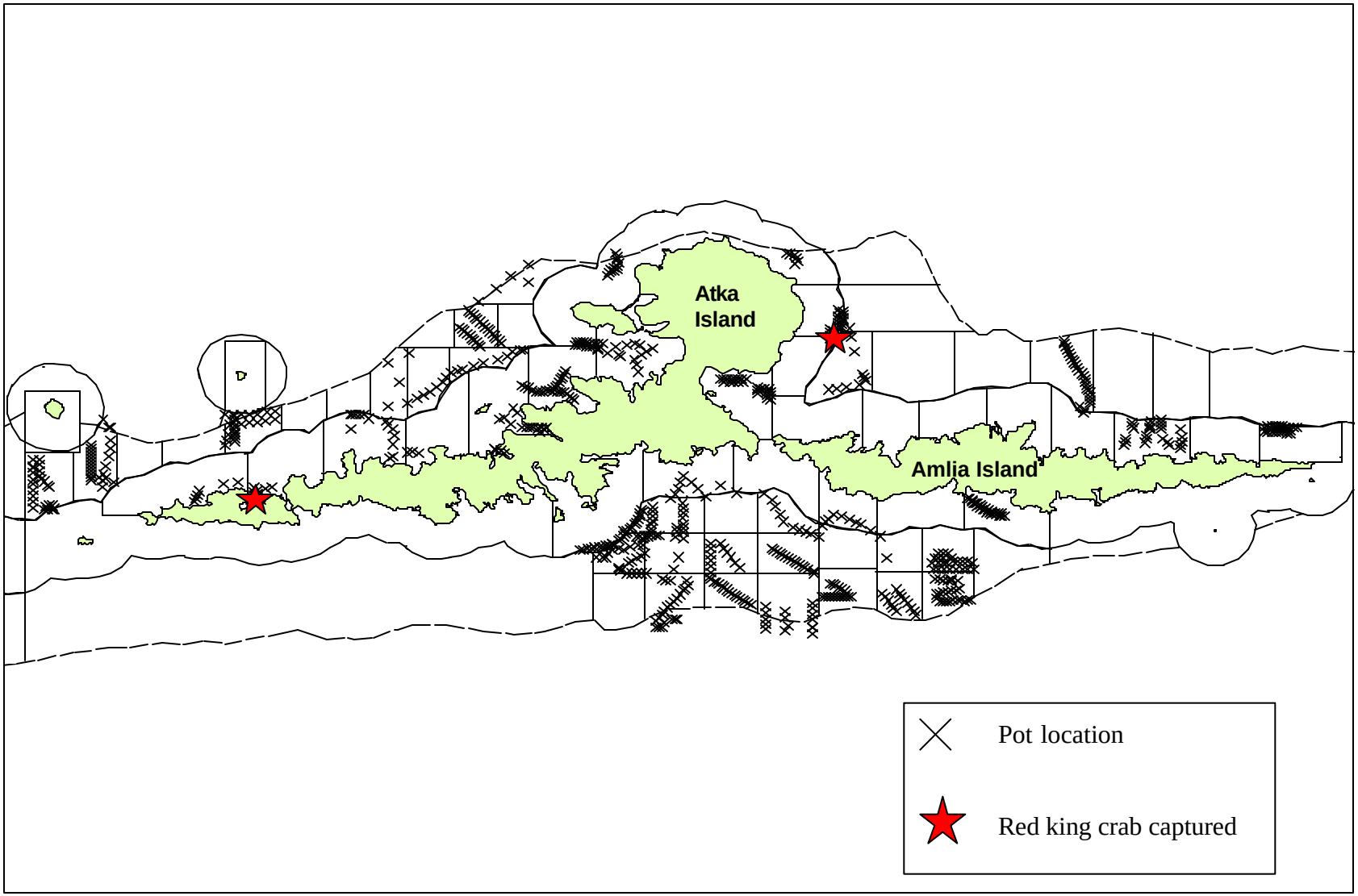

Figure 8. Location of survey pots set in the Atka/Amlia Island locales, November 2002.

APPENDIX

Appendix A. Commissioner's permit for the 2002 western Aleutian Islands survey.

VESSEL NAME: _____ ADF&G #_____

OPERATOR: _____

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

IN ADDITION TO CURRENT RED KING CRAB COMMERCIAL FISHING REGULATIONS, PARTICIPANTS AGREE TO THE FOLLOWING CONDITIONS:

1) Permit is valid from NOON November 1, to NOON November 30, 2002.

2) Participants may only fish for red king crab in those locales and stations randomly assigned by ADF&G. In state-waters stations, vessels 90 feet or less in length will be given preference. If sufficient vessels 90 feet in length or less are not available to fish all state-waters stations, then vessels greater than 90 feet in overall length will be eligible for those stations.

3) Twenty-five pots are to be fished in each station. Pots may not be reset within a station. Only single pots will be allowed, no longlined pots may be used. Pots will be soaked a minimum of 24 hours and a maximum of 48 hours. Pots will be spaced by at least 1/4 nautical mile.

4) A vessel may use no more than two pot sizes. If a vessel has pots of two sizes, the pot types must be fished randomly within a station.

5) Pots must be legal red king crab gear, however, no more than two opposing tunnel entrances per pot are allowed. Pots may not contain mesh larger than 5 inch stretch mesh. Escape rings must be covered so that all escape ring openings have a maximum diameter of 3.5 inches.

6) Each vessel operator will record location of pots fished, catch, depth and soak time in a logbook supplied by ADF&G. Logbook data will be made available to the observer on request.

7) Observer coverage, paid by the vessel, is mandatory on all participating vessels during the entire survey. Vessel operators must be available to attend the briefing of their observer either in person at the Dutch Harbor ADF&G office, in Adak, or telephonically. Observers will sample the entire contents of every 5th pot from each station for biological measurements and other data. Observers will also opportunistically sample additional pots with significant catches as time permits.

8) The onboard observer will measure and record all catch and bycatch of the sampled pots. The vessel crew, under direction of the onboard observer, will assist in the counting and determination of size-sex categories of all crab in all non-sampled pots. The vessel operator and crew must exercise patience and slow the pace of fishing to accommodate the accurate collection of all data required for this survey.

9) Participants must report to ADF&G the number of pot lifts and number of legal and sublegal male and female crab from each station completed prior to moving to the next station.

10) Participants will notify ADF&G in Dutch Harbor prior to commencement of gear operation and at the conclusion of gear operation.

11) All tagged red king crab captured will be made available to the observer for biological data collection and tag data collection at the time of capture.

-Continued-

12) Vessels must adhere to commercial landing requirements at the close of the survey, or when all stations are completed. Vessels participating in both the Petrel Bank commercial fishery and the Adak/Atka/Amlia Islands survey may retain crab from both areas onboard the vessel if the crab are separated into two or more tanks to allow for the collection of accurate weights and biological data from crabs taken in each area.

State-water Stations Assigned:_____

Federal-water Stations Assigned:_____

_____ _____

ADF&G REPRESENTATIVE DATE ISSUED

I _____, operator the F/V _____, hereby authorize the release of confidential fish ticket harvest information that results from my participation in the November 2002 Adak/Atka/Amlia red king crab survey. I understand this information will be used for reporting of stock condition of red king crab in the area between 172° W long. and 179° W long. I also agree to abide by all permit terms stated above.

_____ _____

VESSEL OPERATOR INTERIM USE PERMIT

Appendix B. Coordinates of station corners for the November 2002 Adak, Atka and Amlia Islands red king crab survey.

Station #	W.Long	min	sec	N.Lat	min	sec
A1	177	9	20	100 fathom contour		
A1	176	56	0	100 fathom contour		
A1	177	4	0	51	51	45
A1	176	58	17	51	51	5
A2	176	56	0	100 fathom contour		
A2	100 fathom contour			51	57	25
A2	176	58	17	51	51	5
A2	176	51	40	51	50	34
A3	100 fathom contour			51	57	25
A3	176	47	10	51	57	25
A3	176	51	40	51	50	34
A3	176	47	40	51	50	10
A4	177	4	0	51	51	45
A4	176	58	17	51	51	5
A4	177	7	31	51	44	35
A4	177	1	1	51	44	35
A5	176	58	17	51	51	5
A5	176	47	40	51	50	10
A5	177	1	1	51	44	35
A5	176	53	9	51	44	35
A6	177	10	27	51	44	35
A6	177	1	1	51	44	35
A6	177	10	27	100 fathom contour		
A6	177	3	45	100 fathom contour		
A7	177	1	1	51	44	35
A7	176	53	9	51	44	35
A7	177	3	45	100 fathom contour		
A7	176	59	0	51	37	40
A8	176	34	45	100 fathom contour		
A8	3-mile state-water boundary			100 fathom contour		
A8	176	33	2	51	55	12
A8	3-mile state-water boundary			51	55	12
A9	Adak Island			51	55	12
A9	176	33	2	51	55	12
A9	Adak Island			Adak Island		
A9	176	33	2	Adak Island		

-Continued-

Station #	W.Long	min	sec	N.Lat	min	sec
A10	176	33	2	51	55	12
A10	176	24	40	51	55	12
A10	176	33	2	Adak Island		
A10	176	24	40	51	49	25
A11	176	24	40	3-mile state-water boundary		
A11	176	15	8	3-mile state-water boundary		
A11	176	24	40	Kagalaska Island		
A11	176	15	8	51	52	18
A12	176	15	8	51	57	19
A12	176	4	50	51	57	19
A12	176	15	8	51	52	18
A12	176	4	5	51	51	15
	176	3	0	51	51	40
A13	3-mile state-water boundary			100 fathom contour		
A13	Great Sitkin Island			52	3	50
A13	3-mile state-water boundary			51	57	19
A13	176	4	50	51	57	19
A14	176	9	0	100 fathom contour		
A14	3-mile state-water boundary			100 fathom contour		
A14	Great Sitkin Island			52	3	10
A14	3-mile state-water boundary			52	3	10
A15	175	58	15	52	3	10
A15	175	48	25	52	3	10
A15	175	57	45	51	59	10
A15	175	48	25	51	59	20
A16	175	48	25	3-mile state-water boundary		
A16	175	39	13	3-mile state-water boundary		
A16	175	48	25	51	57	33
A16	175	39	13	51	57	33
A17	176	4	50	Great Sitkin Island		
A17	175	58	19	Great Sitkin Island		
A17	176	4	50	Umak Island		
A17	175	59	18	Umak Island		
A18	175	52	48	51	54	15
A18	175	45	33	51	55	19
A18	175	49	6	3-mile state-water boundary		
A18	175	45	33	3-mile state-water boundary		

-Continued-

Appendix B. (page 3 of 13)

Station #	W.Long	min	sec	N.Lat	min	sec
A19	175	57	45	51	53	8
A19	175	52	48	51	54	15
A19	175	55	32	3-mile state-water boundary		
A19	175	49	6	3-mile state-water boundary		
A20	176	4	5	51	51	15
	176	3	0	51	51	40
A20	175	57	45	Umak Island		
A20	176	2	28	3-mile state-water boundary		
A20	175	55	32	3-mile state-water boundary		
A21	176	10	44	Little Tanaga Island		
A21	176	3	4	Little Tanaga Island		
A21	176	10	44	3-mile state-water boundary		
A21	176	2	28	3-mile state-water boundary		
A22	176	19	22	51	52	18
A22	176	10	44	51	52	18
A22	176	19	22	3-mile state-water boundary		
A22	176	10	44	3-mile state-water boundary		
A23	176	26	56	51	49	25
A23	176	19	22	51	49	25
A23	176	26	56	3-mile state-water boundary		
A23	176	19	22	3-mile state-water boundary		
A24	176	34	53	Adak Island		
A24	176	26	56	Adak Island		
A24	176	34	53	3-mile state-water boundary		
A24	176	26	56	3-mile state-water boundary		
A25	176	43	18	Adak Island		
A25	176	34	53	Adak Island		
A25	176	43	18	3-mile state-water boundary		
A25	176	34	53	3-mile state-water boundary		
A26	Adak Island			Adak Island		
A26	Adak Island			Adak Island		
A26	176	56	18	51	35	40
A26	176	48	24	51	36	47
A27	3-mile state-water boundary			100 fathom contour		
A27	176	21	30	100 fathom contour		
A27	3-mile state-water boundary			51	58	52
A27	176	21	30	51	58	52

-Continued-

Station #	W.Long	min	sec	N.Lat	min	sec
A28	176	21	30	100 fathom contour		
A28	3-mile state-water boundary			100 fathom contour		
A28	176	21	30	51	58	52
A28	3-mile state-water boundary			51	58	52
A29	3-mile state-water boundary			51	58	52
A29	176	21	30	51	58	52
A29	3-mile state-water boundary			3-mile state-water boundary		
A29	176	21	30	3-mile state-water boundary		
A30	176	21	30	51	58	52
A30	3-mile state-water boundary			51	58	52
A30	176	21	30	3-mile state-water boundary		
A30	3-mile state-water boundary			3-mile state-water boundary		
A31	3-mile state-water boundary			100 fathom contour		
A31	175	48	25	100 fathom contour		
A31	3-mile state-water boundary			3-mile state-water boundary		
A31	175	48	25	3-mile state-water boundary		
A32	175	48	25	100 fathom contour		
A32	175	43	1	100 fathom contour		
A32	175	48	25	3-mile state-water boundary		
A32	175	43	1	3-mile state-water boundary		
A33	175	43	1	100 fathom contour		
A33	175	38	4	100 fathom contour		
A33	175	43	1	3-mile state-water boundary		
A33	175	38	4	3-mile state-water boundary		
A34	175	43	1	100 fathom contour		
A34	175	33	45	100 fathom contour		
A34	175	43	1	3-mile state-water boundary		
A34	175	33	45	3-mile state-water boundary		
A35	175	49	6	3-mile state-water boundary		
A35	175	43	35	3-mile state-water boundary		
A35	175	46	43	100 fathom contour		
A35	175	43	35	100 fathom contour		
A36	175	55	32	3-mile state-water boundary		
A36	175	49	6	3-mile state-water boundary		
A36	175	54	5	100 fathom contour		
A36	175	46	37	100 fathom contour		
A37	176	2	28	3-mile state-water boundary		
A37	175	55	32	3-mile state-water boundary		

-Continued-

Appendix B. (page 5 of 13)

Station #	W.Long	min	sec	N.Lat	min	sec
A37	176	2	1	100 fathom contour		
A37	175	54	5	100 fathom contour		
A38	176	10	44	3-mile state-water boundary		
A38	176	2	28	3-mile state-water boundary		
A38	176	10	44	100 fathom contour		
A38	176	2	1	100 fathom contour		
A39	176	19	22	3-mile state-water boundary		
A39	176	10	44	3-mile state-water boundary		
A39	176	19	22	100 fathom contour		
A39	176	10	44	100 fathom contour		
A40	176	26	56	3-mile state-water boundary		
A40	176	19	22	3-mile state-water boundary		
A40	176	26	56	100 fathom contour		
A40	176	19	22	100 fathom contour		
A41	176	42	4	3-mile state-water boundary		
A41	176	26	56	3-mile state-water boundary		
A41	176	42	4	100 fathom contour		
A41	176	26	56	100 fathom contour		
A42	176	56	18	3-mile state-water boundary		
A42	176	42	4	3-mile state-water boundary		
A42	176	56	18	100 fathom contour		
A42	176	42	4	100 fathom contour		
A43	176	56	18	51	35	40
A43	176	43	18	Adak Island		
A43	176	56	18	3-mile state-water boundary		
A43	175	43	18	3-mile state-water boundary		
A44	175	57	45	51	55	59
A44	175	48	25	51	59	10
A44	175	59	18	51	53	8
A44	175	49	1	51	55	19
A45	175	47	17	51	57	33
A45	175	39	13	51	57	33
A45	175	45	34	3-mile state-water boundary		
A45	175	39	13	3-mile state-water boundary		
A46	175	39	13	3-mile state-water boundary		
A46	175	33	45	3-mile state-water boundary		
A46	175	39	13	3-mile state-water boundary		
A46	175	33	45	3-mile state-water boundary		

-Continued-

Appendix B. (page 6 of 13)

Station #	W.Long	min	sec	N.Lat	min	sec
A47	175	43	35	3-mile state-water boundary		
A47	175	39	13	3-mile state-water boundary		
A47	175	43	35	100 fathom contour		
A47	175	39	13	100 fathom contour		
A48	175	39	13	3-mile state-water boundary		
A48	175	33	45	3-mile state-water boundary		
A48	175	39	13	100 fathom contour		
A48	175	33	45	100 fathom contour		
B1	175	33	45	52	11	34
B1	175	26	35	52	11	34
B1	175	33	45	52	6	33
B1	175	26	35	52	6	33
B2	175	10	40	52	15	15
B2	175	5	1	52	15	15
B2	175	10	40	100 fathom contour		
B2	175	5	1	100 fathom contour		
B3	175	24	55	3-mile state-water boundary		
B3	175	7	4	3-mile state-water boundary		
B3	175	24	55	52	1	19
B3	175	7	4	Atka Island		
B5	175	7	4	3-mile state-water boundary		
B5	174	57	31	3-mile state-water boundary		
B5	175	7	4	Atka Island		
B5	174	57	31	Atka Island		
B6	174	57	31	3-mile state-water boundary		
B6	174	47	54	3-mile state-water boundary		
B6	174	57	31	Atka Island		
B6	174	47	54	Atka Island		
B7	174	47	54	3-mile state-water boundary		
B7	174	40	5	3-mile state-water boundary		
B7	174	47	54	Atka Island		
B7	174	40	5	Atka Island		
B8	174	40	5	3-mile state-water boundary		
B8	174	33	1	3-mile state-water boundary		
B8	174	40	5	Atka Island		
B8	174	33	1	Atka Island		
B9	174	33	1	3-mile state-water boundary		
B9	174	24	57	52	15	46

-Continued-

Appendix B. (page 7 of 13)

Station #	W.Long	min	sec	N.Lat	min	sec
B9	174	33	1	Atka Island		
B9	174	24	57	Atka Island		
B10	174	24	57	Atka Island		
B10	Atka Island			Atka Island		
B10	174	24	57	Atka Island		
B10	Atka Island			Atka Island		
B11	3-mile state-water boundary			100 fathom contour		
B11	174	9	0	100 fathom contour		
B11	3-mile state-water boundary			52	15	46
B11	174	24	57	52	15	46
B13	175	33	45	52	6	33
B13	175	28	37	52	6	33
B13	175	33	45	3-mile state-water boundary		
B13	175	28	37	3-mile state-water boundary		
B14	175	28	37	52	6	33
B14	175	23	16	100 fathom contour		
B14	175	28	37	3-mile state-water boundary		
B14	175	23	16	3-mile state-water boundary		
B15	175	23	16	100 fathom contour		
B15	175	17	11	100 fathom contour		
B15	175	23	16	3-mile state-water boundary		
B15	175	17	11	3-mile state-water boundary		
B16	175	17	11	100 fathom contour		
B16	175	10	7	100 fathom contour		
B16	175	17	11	3-mile state-water boundary		
B16	175	10	7	3-mile state-water boundary		
B17	175	10	7	100 fathom contour		
B17	175	3	37	100 fathom contour		
B17	175	10	7	3-mile state water boundary		
B17	175	3	37	3-mile state water boundary		
B18	175	3	37	100 fathom contour		
B18	174	56	42	100 fathom contour		
B18	175	3	37	3-mile state water boundary		
B18	174	56	42	3-mile state water boundary		
B19	174	56	42	100 fathom contour		
B19	174	51	36	100 fathom contour		
B19	174	56	42	3-mile state-water boundary		
B19	174	51	36	3-mile state-water boundary		

-Continued-

Station #	W.Long	min	sec	N.Lat	min	sec
B20	174	51	36	100 fathom contour		
B20	174	46	50	52	15	50
B20	174	51	36	3-mile state-water boundary		
B20	174	46	50	3-mile state-water boundary		
B21	174	46	50	52	15	50
B21	174	42	29	52	15	50
B21	174	46	50	3-mile state-water boundary		
B21	174	42	29	3-mile state-water boundary		
B22	174	42	29	52	15	50
B22	174	33	1	52	15	50
B22	174	42	29	3-mile state-water boundary		
B22	3-mile state-water boundary			3-mile state-water boundary		
B23	100 fathom contour			100 fathom contour		
B23	174	41	59	100 fathom contour		
B23	100 fathom contour			52	15	50
B23	174	41	59	52	15	50
B24	174	41	59	100 fathom contour		
B24	174	36	18	52	19	31
B24	174	41	59	52	15	50
B24	174	36	18	52	15	50
B25	174	36	18	52	19	31
B25	3-mile state-water boundary			52	19	31
B25	174	36	18	52	15	50
B25	3-mile state-water boundary			3-mile state-water boundary		
B26	100 fathom contour			100 fathom contour		
B26	3-mile state-water boundary			100 fathom contour		
B26	100 fathom contour			52	19	31
B26	3-mile state-water boundary			52	19	31
C1	174	9	0	100 fathom contour		
C1	3-mile state-water boundary			100 fathom contour		
C1	Atka Island			52	20	56
C1	3-mile state-water boundary			52	20	56
C2	Atka Island			52	20	56
C2	3-mile state-water boundary			52	20	56
C2	Atka Island			52	16	39
C2	3-mile state-water boundary			52	16	39
C3	Atka Island			52	16	39
C3	3-mile state-water boundary			52	16	39

-Continued-

Station #	W.Long	min	sec	N.Lat	min	sec
C3	174	3	5	52	11	10
C3	3-mile state-water boundary			52	11	10
C4	Atka Island			Atka Island		
C4	174	3	5	Atka Island		
C4	Atka Island			52	7	58
C4	174	3	5	52	7	58
C5	174	3	5	52	11	10
C5	173	52	18	3-mile state-water boundary		
C5	174	3	5	Amlia Island		
C5	173	52	18	Amlia Island		
C6	173	52	18	3-mile state-water boundary		
C6	173	45	14	3-mile state-water boundary		
C6	173	52	18	Amlia Island		
C6	173	45	14	Amlia Island		
C7	173	45	14	3-mile state-water boundary		
C7	173	37	0	3-mile state-water boundary		
C7	173	45	14	Amlia Island		
C7	173	37	0	Amlia Island		
C8	173	37	0	3-mile state-water boundary		
C8	173	29	16	3-mile state-water boundary		
C8	173	37	0	Amlia Island		
C8	173	29	16	Amlia Island		
C9	173	29	16	3-mile state-water boundary		
C9	173	21	37	3-mile state-water boundary		
C9	173	29	16	Amlia Island		
C9	173	21	37	Amlia Island		
C10	173	21	37	3-mile state-water boundary		
C10	173	12	25	3-mile state-water boundary		
C10	173	21	37	Amlia Island		
C10	173	12	25	Amlia Island		
C11	173	12	25	3-mile state-water boundary		
C11	173	3	41	3-mile state-water boundary		
C11	173	12	25	Amlia Island		
C11	173	3	41	Amlia Island		
C12	173	3	41	3-mile state-water boundary		
C12	172	53	54	3-mile state-water boundary		
C12	173	3	41	Amlia Island		
C12	172	53	54	52	5	14

-Continued-

Appendix B. (page 10 of 13)

Station #	W.Long	min	sec	N.Lat	min	sec
C13	3-mile state-water boundary			100 fathom contour		
C13	100 fathom contour			100 fathom contour		
C13	3-mile state-water boundary			52	20	56
C13	100 fathom contour			52	20	56
C14	3-mile state-water boundary			52	20	56
C14	100 fathom contour			52	20	56
C14	3-mile state-water boundary			52	17	39
C14	100 fathom contour			52	17	39
C15	3-mile state-water boundary			52	17	39
C15	173	50	15	52	17	39
C15	3-mile state-water boundary			3-mile state-water boundary		
C15	173	50	15	3-mile state-water boundary		
C16	173	50	15	52	17	39
C16	173	41	46	52	17	39
C16	173	50	15	3-mile state-water boundary		
C16	173	41	46	3-mile state-water boundary		
C18	173	41	46	52	17	39
C18	173	31	59	100 fathom contour		
C18	173	41	46	3-mile state-water boundary		
C18	173	31	59	3-mile state-water boundary		
C19	173	31	59	100 fathom contour		
C19	173	24	50	100 fathom contour		
C19	173	31	59	3-mile state-water boundary		
C19	173	24	50	3-mile state-water boundary		
C20	173	24	50	100 fathom contour		
C20	173	17	36	100 fathom contour		
C20	173	24	50	3-mile state-water boundary		
C20	173	17	36	3-mile state-water boundary		
C21	173	17	36	100 fathom contour		
C21	173	10	36	100 fathom contour		
C21	173	17	36	3-mile state-water boundary		
C21	173	10	36	3-mile state-water boundary		
D2	174	29	49	Atka Island		
D2	174	19	2	Atka Island		
D2	174	29	49	3-mile state-water boundary		
D2	174	19	2	3-mile state-water boundary		
D3	174	19	2	Atka Island		
D3	174	7	51	Atka Island		

-Continued-

Station #	W.Long	min	sec	N.Lat	min	sec
D3	174	19	2	3-mile state-water boundary		
D3	174	7	51	3-mile state-water boundary		
D4	174	7	51	52	7	58
D4	173	57	35	52	7	58
D4	174	7	51	3-mile state-water boundary		
D4	173	57	35	3-mile state-water boundary		
D5	173	57	35	Amlia Island		
D5	173	50	8	Amlia Island		
D5	173	57	35	3-mile state-water boundary		
D5	173	50	8	3-mile state-water boundary		
D6	173	50	8	Amlia Island		
D6	173	39	59	Amlia Island		
D6	173	50	8	3-mile state-water boundary		
D6	173	39	59	3-mile state-water boundary		
D7	173	39	59	Amlia Island		
D7	173	29	41	Amlia Island		
D7	173	39	59	3-mile state-water boundary		
D7	173	29	41	3-mile state-water boundary		
D8	3-mile state-water boundary			3-mile state-water boundary		
D8	174	11	42	3-mile state-water boundary		
D8	3-mile state-water boundary			51	59	28
D8	174	11	42	51	59	28
D9	174	11	42	3-mile state-water boundary		
D9	174	5	9	3-mile state-water boundary		
D9	174	11	42	51	59	28
D9	174	5	9	51	59	28
D10	174	5	9	3-mile state-water boundary		
D10	173	57	35	3-mile state-water boundary		
D10	174	5	9	51	59	28
D10	173	57	35	51	59	28
D11	174	25	1	3-mile state-water boundary		
D11	174	18	31	51	59	28
D11	174	25	1	51	56	2
D11	174	18	31	51	56	2
D12	174	18	31	51	59	28
D12	174	11	42	51	59	28
D12	174	18	31	51	56	2
D12	174	11	42	51	56	2

-Continued-

Appendix B. (page 12 of 13)

Station #	W.Long	min	sec	N.Lat	min	sec
D13	174	11	42	51	59	28
D13	174	5	9	51	59	28
D13	174	11	42	51	56	2
D13	174	5	9	51	56	2
D14	174	5	9	51	59	28
D14	173	57	35	51	59	28
D14	174	5	9	51	56	2
D14	173	57	35	51	56	2
D15	173	57	35	3-mile state-water boundary		
D15	173	50	8	3-mile state-water boundary		
D15	173	57	35	51	56	29
D15	173	50	8	51	56	29
D16	173	50	8	3-mile state-water boundary		
D16	173	44	27	3-mile state-water boundary		
D16	173	50	8	51	56	5
D16	173	44	27	51	56	5
D17	173	44	27	3-mile state-water boundary		
D17	173	38	6	3-mile state-water boundary		
D17	173	44	27	51	56	5
D17	173	38	6	51	56	5
D18	173	38	6	3-mile state-water boundary		
D18	173	29	41	3-mile state-water boundary		
D18	173	38	6	100 fathom contour		
D18	173	29	41	100 fathom contour		
D19	174	25	1	51	56	2
D19	174	18	31	51	56	2
D19	174	25	1	100 fathom contour		
D19	174	18	31	100 fathom contour		
D20	174	18	31	51	56	2
D20	174	11	42	51	56	2
D20	174	18	31	100 fathom contour		
D20	174	11	42	100 fathom contour		
D21	174	11	42	51	56	2
D21	174	5	9	51	56	2
D21	174	11	42	100 fathom contour		
D21	174	5	9	100 fathom contour		
D22	174	5	9	51	56	2
D22	173	57	35	51	56	2

-Continued-

Appendix B. (page 13 of 13)

Station #	W.Long	min	sec	N.Lat	min	sec
D22	174	5	9	100 fathom contour		
D22	173	57	35	100 fathom contour		
D23	173	57	35	51	56	29
D23	173	50	8	51	56	29
D23	173	57	35	100 fathom contour		
D23	173	50	8	100 fathom contour		
D24	173	50	8	51	56	5
D24	173	44	27	51	56	5
D24	173	50	8	100 fathom contour		
D24	173	44	27	100 fathom contour		
D25	173	44	27	51	56	5
D25	173	38	6	51	56	5
D25	173	44	27	100 fathom contour		
D25	173	38	6	100 fathom contour		

Appendix C. Soak time, depth and catch information for the November 2002 Adak, Atka and Amlia Islands red king crab survey.

Adak Island Stations	# Pots	Depth (fathoms)	Soak (hrs.)	Male king crab >165mm	Male king crab <165mm	Female
A 01	0					
A 02	0					
A 03	0					
A 04	15	53	21	0	0	0
A 05	7	41	24	0	0	0
A 06	0					
A 07	0					
A 08	0					
A 09	0					
A 10	20	66	24	0	0	0
A 11	7	85	26	0	0	0
A 12	6	78	29	0	0	0
A 13	0					
A 14	12	65	27	0	0	0
A 15	19	63	26	0	0	0
A 16	12	61	41	0	0	0
A 17	0					
A 18	0					
A 19	0					
A 20	0					
A 21	0					
A 22	10	44	24	0	0	0
A 23	0					
A 24	8	53	26	0	0	0
A 25	0					
A 26	18	63	22	0	0	0
A 27	25	70	22	0	0	0
A 28	25	69	28	0	0	0
A 29	14	76	40	0	0	0
A 30	25	82	25	0	0	0
A 31	25	66	47	1	0	0
A 32	25	74	39	0	1	0
A 33	25	61	46	2	0	0
A 34	0					
A 35	0					
A 36	25	90	25	0	0	0
A 37	25	90	27	0	0	0
A 38	0					
A 39	0					
A 40	0					
A 41	25	77	45	0	0	0
A 42	0					
A 43	6	64	26	0	0	0
A 44	0					

-Continued-

Appendix C. (page 2 of 4)

Adak Island Stations	# Pots	Depth (fathoms)	Soak (hrs.)	Male king crab >165mm	Male king crab <165mm	Female
A 45	0					
A 46	0					
A 47	25	76	27	0	0	0
A 48	0					
Total	404			3	1	0
Average		68	30			

N.Atka Island Stations	# Pots	Depth (fathoms)	Soak (hrs.)	Male king crab >165mm	Male king crab <165mm	Female
B 01	0					
B 02	0					
B 03	6	25	12	0	0	0
B 05	11	19	21	0	0	0
B 06	18	43	23	0	260[a]	260[a]
B 07	0					
B 08	18	31	24	0	0	0
B 09	25	43	30	0	0	0
B 10	15	61	18	0	0	0
B 11	25	72	27	0	0	0
B 13	25	52	46	0	0	0
B 14	25	60	27	0	0	0
B 15	0					
B 16	0					
B 17	25	74	27	0	0	0
B 18	0					
B 19	0					
B 20	5	73	21	0	0	0
B 21	7	82	13	0	0	0
B 22	9	60	23	0	0	0
B 23	0					
B 24	25	60	40	0	0	0
B 25	0					
B 26	5	71	26	0	0	0
Total	244			0	260	260
Average		55	25			

-Continued-

Appendix C. (page 3 of 4)

N.Amlia Island Stations	# Pots	Depth (fathoms)	Soak (hrs.)	Male king crab >165mm	Male king crab <165mm	Female
C 01	6	59	19	0	0	0
C 02	24	56	45	1	0	0
C 03	0					
C 04	25	61	35	0	0	0
C 05	0					
C 06	0					
C 07	0					
C 08	0					
C 09	0					
C 10	25	52	28	0	0	0
C 11	0					
C 12	25	48	27	0	0	0
C 13	0					
C 14	0					
C 15	10	82	46	0	0	0
C 16	0					
C 18	0					
C 19	25	58	40	0	0	0
C 20	0					
C 21	0					
Total	140			1	0	0
Average		59	34			

S.Atka/Amlia Islands Stations	# Pots	Depth (fathoms)	Soak (hrs.)	Male king crab >165mm	Male king crab <165mm	Female
D 02	24	48	48	0	0	0
D 03	11	43	18	0	0	0
D 04	0					
D 05	2	48	20	0	0	0
D 06	0					
D 07	25	31	47	0	0	0
D 08	25	54	31	0	0	0
D 09	0					
D 10	18	45	20	0	0	0
D 11	25	56	44	0	0	0
D 12	0					
D 13	12	52	16	0	0	0
D 14	16	57	32	0	0	0
D 15	0					
D 16	0					
D 17	25	50	32	0	0	0
D 18	0					

-Continued-

Appendix C. (page 4 of 4)

S.Atka/Amlia Islands Stations	# Pots	Depth (fathoms)	Soak (hrs.)	Male king crab >165mm	Male king crab <165mm	Female
D 19	0					
D 20	25	68	39	0	0	0
D 21	17	53	38	0	0	0
D 22	16	79	30	0	0	0
D 23	17	74	34	0	0	0
D 24	14	73	30	0	0	0
D 25	25	68	31	0	0	0
Total	297			0	0	0
Average		56	32			

All Stations	Total Pots	Average Depth (fathoms)	Average Soak (hours)	Total Male king crab >165mm	Total Male king crab <165mm	Total Female
	1,085	61	30	4	261	260

	Adak (A)	N.Atka (B)	N.Amlia (C)	S.Atka/Amlia (D)	Total
Stations	48	24	20	24	116
Stations surveyed	23	15	7	16	61
Completed stations	10	6	4	6	26
Stations not surveyed	25	9	13	8	55
Completed pot pulls	33.6%	21.8%	27.9%	49.5%	37.4%

[a]Numbers provided in logbook were estimated.

Appendix D. Pot contents from bycatch samples taken during the November 2002 Adak, Atka and Amlia Islands red king crab survey.

Common Name	Survey Locale[a] A	B	C	D	TOTAL
arrowtooth flounder	12	8	1	28	49
Atka mackerel	37	0	2	5	44
basket starfish unidentified	0	1	0	6	7
black rockfish	0	0	0	3	3
brittle star unidentified	311	6	0	0	317
decorator crab	2	1	4	11	18
dusky rockfish	5	9	0	20	34
flathead sole	3	0	0	0	3
Gersemia unidentified	0	2	0	0	2
giant wrymouth	1	1	0	0	2
golden king crab	1	0	0	0	1
great sculpin	1	9	0	0	10
hair crab	7	1	3	1	12
hairy triton	1	2	4	0	7
hermit crab unidentified	4	7	0	3	14
hybrid, opilio type Tanner crab	1	0	0	0	1
jellyfish unidentified	0	0	0	2	2
lyre crab	223	212	7	36	478
mussel unidentified	9	80	0	0	89
northern rockfish	5	7	5	24	41
octopus	68	29	12	54	163
Pacific cod	163	93	22	81	359
Pacific halibut	76	49	7	60	192
Pacific ocean perch	1	2	0	6	9
Paragorgia unidentified	1	0	0	0	1
pink scallop unidentified	5	0	0	0	5
prowfish	0	0	0	8	8
red king crab	0	3	0	0	3
redstripe rockfish	3	0	0	0	3
rock sole	5	1	4	6	16
rockfish unidentified	10	1	0	12	23
sablefish (or black cod)	0	2	0	1	3
scaled crab	3	0	0	1	4
scallop unidentified	4	54	0	0	58
sculpin unidentified	33	19	12	37	101
sea anemone unidentified	1	0	0	0	1
sea cucumber unidentified	0	0	0	1	1
sea urchin unidentified	23	4	2	9	38
skate unidentified	2	0	0	0	2
snail unidentified	94	53	3	3	153

-Continued-

Appendix D. (page 2 of 2)

Common Name	Survey Locale[a] A	B	C	D	TOTAL
snailfish unidentified	0	7	0	0	7
sponge unidentified	1	2	0	0	3
starfish unidentified	7	7	0	21	35
Tanner crab	624	1329	262	1	2216
Thouarella unidentified	0	2	1	0	3
walleye pollock	2	2	0	0	4
yellow irish lord	176	168	10	108	462

[a] A: Adak Island stations, B: N. Atka Island stations, C: N. Amlia Island stations and D: S. Atka/Amlia Islands stations